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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,589	03/23/2006	Eric Fassiau	05129-00117-US	1783
23416 7590 07/01/2008 CONNOLLY BOVE LODGE & HUTZ, LLP P O BOX 2207 WILMINGTON, DE 19899				
EXAMINER				
TISCHLER, FRANCES				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/564,589

**Applicant(s)**

FASSIAU ET AL.

**Examiner**

Frances Tischler

**Art Unit**

4171

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-25 is/are pending in the application.  
4a) Of the above claim(s) 16, 18, 20, 22, 24 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 11-15, 17, 19, 21, 23, 25 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date 1/13/06  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Objections***

1. Claims 16, 18, 20, 22 and 24 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of previous claims. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In the instant case, dependent claim 16 includes every limitation of the parent claim (claim 15). Claims 18, 20, 22 and 24 depend on claim 16 which is of improper dependent form. Thus, these claims are not treated under merit.

### ***Double Patenting***

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claim 13 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 17 of copending Application No. 10/564700. Although the conflicting claims are not identical, they are not patentably distinct from each other because the scope of claim 13 in the instant application encompasses the scope of claim 17 of application 10/564700. Claim 17 claims "two different dispersants", while claim 13 claims "two dispersants". The latter encompasses either the same or different dispersants, reading on claim 17. Additionally, since applicant claims that the two dispersants in claim 13 are such that one has greater affinity for the non-solvent and the other has greater affinity for the solvent, it can be assumed that they are two different dispersants, corresponding to claim 17.
4. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 11 – 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vandenhende et al (US 2003/0119925).

7. Regarding claim 11: Applicant claims a process for recovering a polymer in solution in a solvent by precipitating it with a non-solvent, wherein the precipitating medium comprises two dispersants: dispersant (I) has a greater affinity for the non-solvent and dispersant (II) has a greater affinity for the solvent. Similarly, Vandenhende discloses (abstract, [0025], claims 1 and 2) the process of recycling a plastic dissolved in a solvent and precipitated out with a non-solvent in the presence of a dispersant. Vandenhende teaches one dispersant but fails to teach two dispersants. However, Vandenhende discloses ([0025]) the use of various dispersing agents, including polyvinyl alcohol, bentonite, gelatin, esters or ethers of cellulose, water-soluble (co)polymers, etc. The case law has held that "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). It would have been obvious to one of ordinary skill in the art in the instant case to have used any two dispersants in combination such that one has a greater affinity to the solvent and the other has a greater affinity to the non-solvent.
8. Claim 12 further claims PVC, corresponding to Vandenhende's disclosure of PVC ([0014], claim 10).
9. Claims 14, 15 and 17 further claim that dispersant (I) is added before phase inversion and dispersant (II) is added after phase inversion. Applicant also claims adding all of dispersant (I) and a minority weight fraction of dispersant (II) before the

non-solvent is added and adding the remainder of dispersant (II) after phase inversion. Vandenhende discloses ([0025]) adding the dispersing agent from the beginning of the dissolution of the plastic or, alternatively, the dispersing agent may be added at the same time as the non-solvent, corresponding to applicant's claim of adding the dispersant before or after phase inversion. It would have been obvious to one of ordinary skill in the art to have optimized the variables of adding the dispersants at certain times and of certain amounts depending on desired results, such as the degree of precipitation, costs of chemicals, physical appearance of the precipitate, etc.

10. Claim 19 further claims water as the non-solvent and dispersants selected from cellulose ether and polyvinyl alcohol. Similarly, Vandenhende discloses ([0025, [0032], claims 5 and 10) water as the non-solvent and, among others, cellulose ether and polyvinyl alcohol as the dispersant.

11. Claim 25 further claims a process for recycling an article based on at least one polymer which comprises optionally shredding the article into fragments with an average size of 1 to 50 cm, contacting the article fragments with a solvent able to dissolve the polymer and recovering the polymer using the process of claim 11. Similarly, Vandenhende discloses (abstract, [005[ - [007], [0025], claims 1, 2 and 12) a process of recycling a plastic where an article is shredded into fragments having an average dimension of 1 – 50 cm, contacting the fragments with a solvent capable of dissolving the polymer and recovering the polymer from solution as disclosed above.

12. Regarding claim 13: Applicant claims the non-solvent is added gradually which causes a phase separation and then a phase inversion, the amount of which is initially less than required for phase inversion and is subsequently introduced at least partially in vapor form. Similarly, Vandenhende discloses ([0026], claim 3) the gradual addition of the non-solvent; the phase inversion is generally observed, that is to say the precipitation medium changes from a dispersion of the non-solvent to a dispersion of the solvent in the non-solvent. Vandenhende fails to teach two dispersants and Q and Q' quantities. Referring to the two dispersants, Vandenhende's disclosure of dispersants has been discussed above. Referring to Q and Q', Vandenhende's disclosure ([0026]) of the gradual addition of non-solvent means that at a point in time the non-solvent will hit a Q' value and at another point in time it will hit the Q value. Vandenhende also discloses ([0024], [0041]) injecting the non-solvent in both liquid and gaseous form for a faster precipitation of the plastic and injection of steam to permit for easier solvent removal. It is prima facie obvious to introduce the vapor at some point in time during the gradual introduction of the non-solvent that may hit the desired point claimed by applicant. It is noted that Q and Q' depend on the nature of solvent, non-solvent and polymer to be precipitated. The case law has held that "A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d618, 195 USPQ 6 (CCPA 1977). Thus, it would have been obvious to

one of ordinary skill in the art at the time the invention was made to achieve the claimed Q' and Q values through routine optimization and thereby obtaining the invention.

13. Regarding claims 21 and 23: Applicant claims the dispersant to be polyvinyl alcohols having different degrees of hydrolysis, where dispersant (I) has a higher degree of hydrolysis (65 – 90%) than dispersant (II) (less than or equal to 60%). Similarly, Vandenhende's dispersant comprises polyvinyl alcohol ([0025]). Vandenhende fails to teach two dispersants and the degree of hydrolysis in the polyvinyl alcohol. However, polyvinyl alcohol contains a wide distribution of segments that encompass various degrees of hydrolysis, i.e., some areas may contain more acetate groups and some may contain more hydroxyl groups. Components with more hydroxyl groups will inherently have a greater affinity to the non-solvent and the components with less hydroxyl groups will have an inherently greater affinity to the solvent. Thus, the dispersant used by Vandenhende corresponds to the two dispersants used by applicant since both function in the same manner of having a greater affinity to the solvent or to the non-solvent. It would have been obvious to one of ordinary skill in the art to have assumed that any sample of hydrolyzed polyvinyl alcohol will contain various degrees of hydrolysis and that it can be used as both a hydrophilic agent and as a hydrophobic agent. Additionally, one of ordinary skill in the art would have known to choose polyvinyl alcohols with more or less hydroxyl groups depending on the intended use while working with the solvent or with the non-solvent.



14. Claim 11 is further rejected under 35 U.S.C. 103(a) as being unpatentable over Vandenhende et al (US 2003/0119925) in view of Rosano (US 4,146,499).

15. Rosano discloses (abstract) the use of two surfactants in the preparation of oil-in-water microemulsions where the first surfactant is dissolved in the oil, both then added to the water phase and, subsequently, the second surfactant (which is more soluble in water than the first) is then added. Rosano discloses that this process of using two surfactants in a hydrophobic/hydrophilic moiety is advantageous in chemical reactions involving hydrophobic substances such as polymers (column 5, lines 28 - 40). This process has the advantage of providing a convenient means of preparing microdispersions of such substances in water to facilitate chemical reactions and other such uses of such substances.

16. In light of such benefit, it would have been obvious to one of ordinary skill in the art to utilize a combination of surfactants as taught by Rosano in the disclosure of Vandenhende.

***Prior Art Cited But Not Applied***

17. Any prior art reference which is cited on Form PTO-892 but not applied is cited to show the general state of the art at the time of applicant's invention. Said references teach surfactants and recycling of PVC by means of solvent and non-solvent.

***Examiner Information***

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frances Tischler whose telephone number is (571)270-5458. The examiner can normally be reached on Monday-Friday 7:30AM - 5:00 PM; off every other Friday.

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ling-Siu Choi/  
Primary Examiner, Art Unit 1796

Frances Tischler  
Examiner  
Art Unit 4171

/FT/